

FRAS – List of Proposed Strategies by Issue Theme

Issue Theme One: Private Forest Landowner Demographic Trends and Corresponding Land Use Changes

Missouri's family forest landowners are getting older. This trend, paired with other factors such as increasing land prices, real estate taxes and economic hardships are making Missouri's privately owned forestland increasingly vulnerable to threats such as forest conversion, fragmentation, parcelization and urban sprawl.

Desired Future Conditions:

1. As privately owned forestland changes ownership, it transitions smoothly to new owners who will continue or initiate sustainable forest management.
2. There is no net loss of Missouri's total forest acreage.
3. Forested acres in Forest Opportunity Areas and Priority Forest Landscapes increase in total acreage of quality forestland.
4. Forests become less fragmented, and less vulnerable to fragmentation.
5. Privately owned forest tracts remain sufficiently large to maintain various management options, or such management can be achieved across multiple adjoining ownerships.
6. Future residential and commercial development is well planned in order to avoid destroying or negatively impacting important green infrastructure.

Issue Theme One - Strategies & Example Action Items:

1.1.1 Forest Land Conservation

Provide successional planning information and resources to landowners to help facilitate the smooth and sustainable transition of property to the next generation of landowners.

Example Action Items:

- Offer training and/or information to private landowners to help them with successional planning.
- Offer similar training to financial advisors and attorneys.
- Make tools such as conservation easements readily available.

1.1.2 Forest Land Conservation

Focus development in less ecologically important areas utilizing smart growth principles.

Example Action Items:

- Develop Green Infrastructure Plans to determine which urban geographies are well suited for smart growth and which areas should be protected as important green infrastructure.
- Work with Regional Councils of Government, counties, cities and developers to promote conservation and smart growth principles in planning and zoning regulations and development efforts.

1.1.3 Forest Land Conservation

Develop and implement a strategic forest land conservation program in order to protect tracts and forests of especially high public benefit.

Example Action Items:

- Targeted land acquisition.
- Promote the establishment of conservation easements in targeted areas.
- Explore the concept of Transferable Development Rights (TDR's)
- Offer state-funded Payment in Lieu of Taxes to cities and counties for setting aside more green areas.

1.2.1 Small Acreage Landowners

Develop effective and efficient techniques for assisting small acreage landowners (<10 acres of forest).

Example Action Items:

- Heritage Woodlands Program.
- Small landowner workshops.
- Promote the establishment of forest landowner coops.

Note: This list of strategies is not all inclusive. Additional strategies contributing towards this Issue Theme can be found listed under Issue Themes 2, 3, 4, 5, 6, 8, 9 & 11

Issue Theme Two: Challenges and Opportunities for Private Forest Landowners

Private forest landowners face a number of challenges and opportunities which affects their ability to manage forestland sustainably. Professional forester, loggers and contractors exist, but are not always readily available. Furthermore, taxes, ordinances and forest investment costs can impact landowners' ability to make management decisions based on long term conservation objectives. Despite these challenges, new opportunities are developing such as ecosystem service markets, biofuels markets, and conservation easement programs. These and other developments could significantly change the face of private land ownership in the coming years.

Desired Future Conditions:

1. Foresters, contractors and loggers are readily available who can help private forest landowners manage their forests sustainably.
2. Voluntary incentives and markets make it simple and cost effective for private forest landowners to practice sustainable forest management.
3. Disincentives to sustainable forest management are minimal.
4. Societal benefits of Missouri's privately owned forest land (i.e. water quality, forest products, etc.) are recognized by private landowners and the public.

Issue Theme Two - Strategies & Example Action Items:

2.1.1 Technical Assistance

Increase the availability and credibility of quality foresters, loggers and contractors able to help landowners set and achieve personal objectives through sustainable forest management practices.

Example Action Items:

- Promote Missouri's Master Logger Certification and Professional Timber Harvester Training programs.
- Develop internships for training potential consultant foresters.
- Provide more continuing education opportunities for foresters.
- Make potential college students more aware of Forestry as a career choice.
- Develop and utilize two year Forestry Associates Degree programs to make available trained technicians.

2.1.2 Technical Assistance

Provide technical information, assistance and financial help to private landowners which enables them to make and carry out informed management decisions towards healthy and sustainable forests.

Example Action Items:

- Provide on-site visits for landowners with >10 acres of forest.
- Make available publications, web materials and information packets.
- Provide technical assistance with forest inventorying and planning, timber harvests, TSI, tree planting, etc..
- Provide cost share for forest improvement practices which benefit the general public.

2.2.1 Markets, Programs and Incentives

Develop and promote markets for wood products and ecosystem services which make sustainable forest management a more affordable option for private landowners.

Example Action Items:

- Develop and promote carbon sequestration markets
- Develop and promote markets for providing clean drinking water.
- Develop and promote sustainable biofuels markets.

2.2.2 Markets, Programs and Incentives

Develop and promote programs and incentives to entice landowners to manage their forests sustainably into the future, and to discourage unsustainable management.

Example Action Items:

- Tax breaks.
- Ecosystem service payments.
- Conservation easements.
- Bundled service packages for landowners (could include certification, ecosystem service payments, forester assistance, cost share, tax abatements, etc.) in exchange for legally committing to sustainable forestry.

2.3.1 Landowner Awareness

Increase private landowner awareness of important forestry threats and opportunities through strategic communication and conservation marketing.

Example Action Item:

- Call Before you Cut Campaign
- Provide forestry information to realtors who can pass it on to new landowners.
- Enhance internet resources for private forest landowners.
- Initiate a "Forests for the Future" outreach campaign.

2.3.2 Landowner Awareness

Increase private landowner awareness of the important role their property contributes to particular watersheds, landscapes or initiatives.

Example Action Item:

- Develop landscape based stewardship plans in accordance with the USFS's revised stewardship program.

2.4.1 Public Awareness

Increase awareness of the general public and local decision makers regarding the existing and potential ecosystem services offered by privately owned forests (i.e. clean drinking water) to the extent that they are willing to support programs which enable landowners to cost effectively manage their forests sustainably for the greater public good.

Example Action Item:

- Develop and implement a communication strategy (i.e. a "Forests for the Future" outreach campaign).
- Develop ecosystem service markets for clean water, carbon sequestration, wildlife habitat, etc.
- Provide public funding and support for conservation easements.
- Demonstrate an economic justification for keeping forests as forests.

2.5.1 Landowner Recognition

Recognize landowners who contribute greatly to forest conservation and sustainability.

Example Action Items:

- Missouri Tree Farm Certification program.

Note: This list of strategies is not all inclusive. Additional strategies contributing towards this Issue Theme can be found listed under Issue Themes 1, 3, 4, 5, 6, 7, 10 & 11.

Issue Theme Three: Climate Change

Without taking appropriate precautions, Missouri's trees and forests could be highly vulnerable to potential changes in climate. There is much we do not know about how climate change will take form in Missouri. However, forest management practices can make our forests more resilient and adaptable regardless of how our climate changes. These same practices pose many other benefits to our forests such as improved overall forest health, productivity and wildlife habitat. The threat of climate change simply underscores the importance of these practices. Issue Three also explores the important role Missouri's forest resources could play in mitigating climate change.

Desired Future Conditions:

1. Ecosystem services are sustained as forests successfully adapt to changing climate.
2. Forests are contributing to mitigation of global climate change.
3. New scientific information, tools, and technology increase understanding of climate change impacts, adaptation and mitigation options, and risks and uncertainties.

Issue Theme Three - Strategies & Example Action Items:

3.1.1 Adaptation

Increase the adaptability of Missouri's forests to uncertain changes in climate.

Example Action Items:

- Thin forests to improve overall health and vigor.
- Promote broad tree species diversity, taking potential tree species shifts into management consideration.
- Promote forest habitat connectivity.

3.2.1 Mitigation

Promote the role of forests and forest products in sequestering carbon and mitigating the potential effects of carbon emissions.

Example Action Items:

- Develop and/or provide landowner accessibility to carbon sequestration markets for forests.
- Promote sustainable, conservation friendly biofuels markets.
- Provide funding for conservation easements.

3.3.1 Research

Conduct research to increase our understanding of carbon sequestration, climate change, potential impacts and management implications.

Example Action Items:

- Research the effects of various forest management strategies on carbon sequestration rates.
- Develop better data on carbon sequestration rates for different forest types.
- Develop better data on how adaptable various tree species are to potential climate scenarios.

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Issue Theme Four: Maintaining High Quality Soil and Water Resources

Trees and forests, when managed properly, are highly effective at conserving soil and water resources. Forested landscapes produce much of our cleanest and most cost effective drinking water. Riparian forests help hold streambanks in place and filter out pesticides, nutrients and sediments before they can reach streams. Urban trees and forests minimize storm water runoff and associated issues. In order to maintain and enhance the soil and water benefits of trees and forests, existing forest resources must be carefully managed, and reforestation should be conducted in strategic locations. These same efforts will also help to ensure that soils will remain productive and abundant into the future.

Desired Future Conditions:

1. Forests provide high quality, cost effective drinking water.
2. Aquatic ecosystems, and the plants and animals they support, are maintained and enhanced by forests*.
3. Soil and water resources are protected through the widespread use of riparian forest buffers and best management practices*.
4. Soil productivity is maintained through sustainable forest management practices.
5. Urban storm-water runoff is minimized through the use of trees and forests.
6. Forests maintain and enhance water related recreation opportunities (canoeing/boating, fishing, hunting, wildlife viewing and aesthetics, etc.)

*These DFC's may not apply to some grassland dominated landscapes.

Issue Theme Four - Strategies & Example Action Items:

4.1.1 Best Management Practices

Increase and improve the use of forestry Best Management Practices which protect soil and water resources.

Example Action Items:

- Improve landowner awareness of BMP's.
- forest practice regulations.
- Increase industry awareness and incentive to use BMP's.
- Monitor the use of BMP's on public and private land to determine usage rates and effectiveness.
- Refine BMP's to accommodate new technologies and science.

4.2.1 Riparian Forests and Wetlands

Maintain existing riparian forests and wetlands, and re-forest priority riparian areas and wetlands which have been converted from forest to non-forest use.

Example Action Items:

- Offer incentives for re-forestation of riparian areas (i.e. CRP).

4.3.1 Coordination with Watershed Partnerships and Plans

Utilize and promote watershed basin partnerships and plans which incorporate tree and forest strategies to benefit water quality and quantity.

Example Action Items:

- Work with the James River Partnership and promote tree and forest strategies.

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Issue Theme Five: The Role of Fire in Missouri's Forests – Past, Present and Future

Historically, fire played a large role in shaping Missouri's forests and woodlands. Over the last century, Missouri has waged a highly successful campaign to keep wildfires to a minimum. These efforts have done tremendous good in protecting people and property. However, the exclusion of fire is significantly modifying the structure, diversity and function of many forest and woodland communities. Since wildfires can no longer be tolerated, proactive management practices (i.e. prescribed fire, TSI, harvesting) are often needed in order to restore and/or maintain Missouri's forest resources in a healthy, productive and wildlife friendly condition.

Desired Future Conditions:

1. Frequency and size of wildfires are kept to a minimum.
2. Homes, structures and communities are "Firewise".
3. Forest resources and ecosystem services are not adversely affected by wildfires.
4. Public and volunteer firefighters spend less time fighting wildfires, and therefore can direct time and financial resources to other priorities.
5. Fire adapted landscapes and natural communities are restored and/or maintained through the use of prescribed fire and/or other management tools.
6. Prescribed fire techniques are developed and practiced to maximize the benefits of prescribed fire while minimizing damage to timber quality.

Issue Theme Five - Strategies & Example Action Items:

5.1.1 Prevention:

Minimize the occurrence and impact of wildfire through the use of prevention efforts.

Example Action Items:

- Promote Firewise and/or Firewise principals to both communities and individuals.
- Promote public awareness of fire safety and wildfire hazards.

5.2.1 Suppression:

Suppress wildfires in order to protect people, property and natural resources.

5.3.1 Prescribed Fire

Advance the science and understanding of Rx fire in order to better quantify its effects and improve its effectiveness.

Example Action Items:

- Research implications of Rx fire such as carbon, water quality, timber quality and tree regeneration.
- Research on timing and intensity of Rx fire for obtaining desired results.

5.3.2 Prescribed Fire

Provide resources needed by private landowners to safely conduct Rx fires without the assistance of public agency personnel.

Example Action Items:

- Provide training to private landowners on the safe and effective use of Rx fire.
- Make burn kits available to private landowners.
- Develop a cadre of Rx fire contractors capable of servicing private land requests.

5.4.1 Multi-agency Collaboration and Preparedness

Develop an active, multi-agency Fire Council to better foster communication and collaboration concerning wildfire and Rx fire.

Example Action Items:

- Develop Statewide Smoke Management Plan.

5.4.2 Multi-agency Collaboration and Preparedness

Develop Community Wildfire Protection Plans (CWPP).

Example Action Items:

- Offer grants for developing CWPP's

5.4.3 Multi-agency Collaboration and Preparedness

Monitor fire weather and fuel conditions to determine fire risk and the appropriateness of Rx fire, and communicate information to fire partners.

Example Action Items:

- Maintain and monitor fire weather stations.
- Provide fire weather and fuels information via internet.

5.4.4 Multi-agency Collaboration and Preparedness

Monitor wildfires and Rx fires to determine the frequency, acreage, spatial distribution, etc.

5.4.5 Multi-agency Collaboration and Preparedness

Maintain expertise in wildfire suppression and the use of prescribed fire in order to sustain proficiency and preparedness.

Example Action Items:

- Provide fire simulation training to RFD's.
- Utilize the Midwest Wildfire Training Academy to train firefighters and Rx Fire technicians from multiple agencies.
- Supply crews to the USFS for out-of-state fire assignments to build preparedness for potential large scale disasters in Missouri.

5.4.6 Multi-agency Collaboration and Preparedness

Maintain and enhance the capacity and preparedness of RFD's by increasing accessibility to needed equipment.

Example Action Items:

- Matching Grant program
- FEPP/FFPP

5.5.1 Public Awareness

Increase public awareness of the benefits of carefully planned and executed Rx fire, the harm of wildfire, and the differentiation between the two.

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Issue Theme Six: Missouri's Growth, Harvest and Consumption of Forest Products

Missouri's forest products industry is an important contributor to Missouri's economy, and supports a number of economic, social and environmental values. Ensuring that these values are maintained into the future means carefully balancing harvest and consumption rates with available growth, and making sure that harvest practices account for long term productivity and sustainability of all forest benefits and services.

Desired Future Conditions:

1. Missouri's forests and forest industry provide forest products demanded by the public (i.e. certified wood), and contribute significantly to MO's economy.
2. Missouri's forests produce a volume of forest products equivalent to the amount Missourians consume.
3. The harvest of forest products, including potential new markets, is sustainable both statewide and regionally.
4. Harvesting maintains and enhances the health and productivity of forests, and does not compromise other forest services and benefits.
5. Forests are resilient to potential stressors (insects and disease, drought, climate change) to ensure sustained growth and yield over time.
6. Forest industry and communities which depend on it remain viable.
7. Trees are grown and utilized to their highest value.
8. Missourians are aware of how they use wood, how much they use, and where it comes from.

Issue Theme Six - Strategies & Example Action Items:

6.1.1 Markets

Promote certified forests and certified forest products as a means of encouraging sustainable forest management on private lands and also to maintain Missouri's market share in the forest products industry.

Example Action Items:

- Certify public lands to provide a critical mass for a sustainable source of certified Missouri-grown forest products and to jump start the market.
- Utilize the Tree Farm Certification Program with appropriate private landowners.

6.1.2 Markets

Encourage better utilization of forest products in a way which provides better incentive to landowners for sustainable management.

Example Action Items:

- Develop sustainable biomass markets.
- Promote and develop forest product markets in parts of the state where they are lacking.

6.1.3 Markets

Promote marketing and branding of Missouri grown forest products.

6.1.4 Markets

Steer potentially emerging woody biomass markets, and other potentially emerging markets, in a sustainable direction.

6.2.1 Monitoring

Monitor forest growth, harvest and consumption rates to ensure harvest rates remain sustainable.

Example Action Items:

- Timber Product Output survey.
- Forest Inventory and Analysis data collection and analysis.
- Continuous Forest Inventory Plots on areas managed by MDC.

6.2.2 Monitoring

Monitor and report timber price trends in order to maintain a pulse on demand and to improve trust levels between mills, loggers and landowners.

6.3.1 Recognition

Recognize the contributions of top performing loggers.

Example Action Items:

- Logger of the Year award.
- Master Logger Certification

6.4.1 Communication

Improve communications between foresters, mills and loggers to provide better understanding of each other's needs and expectations.

Example Action Item:

- Forester Training on Utilization and Marketing.
- MDC technical assistance provided to industry as needed.
- Professional Timber Harvester training.
- Cross training between foresters and loggers.

6.5.1 Forest Health

Develop partnership between governmental agencies and private industry towards minimizing forest health risk to insect and disease threats.

Example Action Items:

- Emerald Ash Borer quarantine.
- Safeguards against 1,000 cankers walnut disease
- Minimize the distance of travel of firewood.

6.6.1 Landowner and Industry Awareness

Create public awareness among landowners, loggers and other partners of the benefits long term sustainable forest management, and the harm of unsustainable management practices.

Example Action Items:

- Call Before you Cut campaign

6.7.1 Accountability

Promote a sustainable forest products industry in Missouri which promotes and enables the maintenance of healthy forests and woodlands.

Example Action Items:

- Master Logger Certification
- Forest Certification, and Chain of Custody Certification.
- Require statewide use of BMP's on public land and when government funding is involved.
- Regulation

Note: This list of strategies is not all inclusive. Additional strategies contributing towards this Issue Theme can be found listed under Issue Themes 1, 2, 3, 4, 5, 7, 9, 10 & 11.

Issue Theme Seven: Forest Health Threats: Plants, Animals, Diseases and Weather

Missouri's forest resources are vulnerable to a number of current and potential forest health stressors. Exotic and invasive plants (i.e. honeysuckle, garlic mustard, ironwood), insects and diseases (i.e. emerald ash bore, gypsy moth, walnut thousand cankers disease), large animals (i.e. feral hogs, livestock, overpopulated deer), and extreme weather events are posing increasingly detrimental impacts to our forests. Proactive measures are needed in order to avoid preventable forest health issues and minimize harm from health stressors that arise.

Desired Future Conditions:

1. MO's forests are able to sustainably provide important ecosystem services.
2. MO's forests remain well balanced in type, species composition, and age and size distribution.
3. MO's forests continue to provide valuable habitat to the plants and animals which depend on them.
4. Forest management options are not compromised by exotic/invasive plants, animals and diseases.
5. The geographical extent and potential future threat of various exotic and invasive plants, animals and diseases are well understood.
6. Methods for most effectively and efficiently preventing and dealing with exotic/invasive plants, animals and diseases are well known and practiced.

Issue Theme Seven - Strategies & Example Action Items:

7.1.1 Monitoring Forest Health Threats

Monitor the range and extent of new and existing forest insect and disease threats. Strive for early detection of new forest health threats in order to minimize harm, and increase the affordability and effectiveness of control strategies.

Example Action Items:

- EAB monitoring.
- Gypsy Moth trapping.
- 1,000 cankers disease monitoring.
- Insect and disease diagnosis lab.
- Maintain insect and disease reporting system

7.1.2 Monitoring Forest Health Threats

Develop geographic information on the range and extent of invasive exotic plants detrimental to forest health. Data Gap

7.2.1 Strategic Planning for Forest Health Threats

Develop, maintain and implement strategic plans for known forest insect and disease pests which pose high current or potential threat.

Example Action Items:

- EAB Plan
- Task force to address firewood issues.
- 1,000 Cankers Disease

7.2.2 Strategic Planning for Forest Health Threats

Develop and implement a strategic plan for protecting forests from exotic and invasive plants in the most effective and efficient manner possible.

Example Action Items:

- Establish a detail assignment to develop and promote this plan.
- Develop and utilize Cooperative Weed Management Programs and Plans.

7.3.1 Communications

Improve communications and awareness of forest health threats to the public to help citizens identify threats, avoid their establishment, and appropriately address detected outbreaks and occurrences.

Example Action Items:

- Develop web tools for I&D diagnosis.
- Don't move firewood campaign.
- Develop and implement a communications strategy for exotic plants.
- Promote "Grow Native" program.
- Develop and utilize a forestry communications specialist.

7.4.1 Research

Conduct and/or compile research on the most effective and efficient methods for addressing exotic plant species outbreaks.

7.4.2 Research

Conduct and/or compile research on the most effective and efficient methods for addressing miscellaneous tree insect and disease pests.

7.5.1 Resiliency

Improve the overall health of trees and forests in order to make them as resilient as possible to miscellaneous forest health threats.

Example Action Items:

- Maintain proper stocking.
- Maintain high tree species diversity.
- Conduct natural community restoration in accordance with MDC's Forest Land Action Guidelines (FLAG).

7.6.1 Feral Hogs

Continue efforts to eradicate feral hogs.

7.7.1 Livestock

Promote the benefits of excluding livestock from the woods, and provide financial resources to landowners to make this possible.

7.8.1 Deer

Monitor deer browse impacts where this is a concern and recommend modifying hunting regulations as needed.

Note: This list of strategies is not all inclusive. Additional strategies contributing towards this Issue Theme can be found listed under Issue Themes 1, 2, 3, 5, 6, 8, 9, 10 & 11.

Issue Theme Eight: The Role of Trees and Forests in Improving Quality of Life and Sustainability in Cities

Urban/community trees and forests provide numerous social, economic and environmental benefits. Urban/community trees and forests decrease storm water runoff, improve air quality, reduce the heat island effect, provide wildlife habitat and aesthetics, decrease energy demands, and much more. Maintaining and enhancing urban forest resources will require better quantification of

benefits and maintenance needs so that local decision makers can more easily plan and justify investments in urban forest infrastructure.

Desired Future Conditions:

1. Healthy and sustainable urban/community trees and forests support desirable and ecologically fit places of residence for Missouri citizens.
2. Urban and community trees and forests contribute significantly to minimizing storm-water runoff, improving air quality, reducing heat islands, reducing energy consumption, and more.
3. Trees and forests are recognized as an important component of city and community infrastructure needing to be maintained and adequately funded.

Issue Theme Eight - Strategies & Example Action Items:

8.1.1 Public Awareness

Increase awareness of the general public and local decision makers regarding the public benefits of urban trees and forests - to the extent that the public demands the maintenance and development of green infrastructure and are willing to pay for it.

Example Action Items:

- Perform STRATUM and UFORE analyses.
- Utilize tree benefits price tags in urban areas.
- Acquire a forestry communications specialist.
- Articulate the value of trees to stormwater mitigation.
- Work with communities to promote healthy watersheds and encourage smart development within these watersheds.

8.1.2 Public Awareness

Increase public awareness of the importance of proper tree selection, planting and maintenance practices.

Example Action Items:

- Promote "Right Tree in the Right Place".
- Develop list of recommended trees with consideration given to potential forest health stressors (I&D, climate change, etc.).
- Anti-topping campaign

8.2.1 Technical Assistance

Provide Training to Municipalities, Private Arborist, Utility Workers and Homeowners on proper tree selection, planting and maintenance.

8.2.2 Technical Assistance

Promote the use of certified arborists and foresters who are trained and qualified to manage urban trees and forests.

Example Action Items:

- Provide incentives to arborists for getting certified.
- Provide incentives to cities for tree care training.

8.2.3 Technical Assistance

Provide technical assistance to communities for developing comprehensive community forestry programs.

Example Action Items:

- Promote city tree ordinances and help communities develop and adopt them.
- MDC's Tree Resource Improvement and Maintenance (TRIM) grant program.
- Support Tree City USA, grow to 100 Tree Cities
- Support Tree Line USA, grow to 15 providers.

8.3.1 Data

Gather data to accurately monitor and assess urban forests.

Example Action Items:

- UFORE/Stratum Analyses
- Tree Canopy Assessments
- 44 City Survey
- Satellite imagery.

8.4.1 Development BMP's

Demonstrate and showcase BMP's for green development with partners.

Example Action Items:

- Develop grant program for green development BMP's.

8.5.1 Recognition

Recognize arborists, volunteers, etc. for quality work and contributions.

Example Action Items:

- Develop Arborist of the Year Award, etc.

8.6.1 Urban Wood Waste

Develop cost effective and resourceful methods of utilizing wood waste.

Example Action Items:

- Develop biofuels markets for urban wood waste.
- Promote the utilization of urban tree wood waste for lumber production.

8.7.1 Urban Forest Diversity

Diversify the urban forests by promoting the use of native species and cultivars which are not as well known, but desirable for urban landscape use.

Note: This list of strategies is not all inclusive. Additional strategies contributing towards this Issue Theme can be found listed under Issue Themes 1, 3, 4, 7 & 11.

Issue Theme Nine: Public Lands which are Managed for the Greatest Public Good

Public lands and other protected lands are important assets which are highly valued by society. Beyond the normal benefits and services provided by forests, public forest lands are especially important because they are typically managed under agency mandates for sustainability and conservation, and are generally protected from conversion to other uses such as urban development. Furthermore, due to size, location and management objectives, public forests offer many of Missouri's best opportunities to maintain biodiversity and provide recreational opportunities. Sustaining the benefits of public forest land will require maintaining sufficient funding for management, and carefully balancing the demands of a diverse public and the needs of a diverse forest resource.

Desired Future Conditions:

1. Public lands are inviting, and provide numerous benefits and services.
2. Public lands provide convenient and desirable opportunities to enjoy Missouri's forests.
3. Citizens are aware of public lands and their availability, benefits and issues.
4. Public lands provide sufficient infrastructure (parking lots, trails, etc.), which can be maintained efficiently and sustainably.
5. Public lands are managed sustainably to provide multiple benefits (recreation, wildlife habitat, ecosystem services, timber, aesthetics, etc.).
6. Public land management serves as a model for private landowners to view sustainable mgmt practices and outcomes.
7. Citizens understand the need to actively manage public forests (thinning, prescribed fire, harvest, etc.) in order to improve and maintain their health and benefits.

Issue Theme Nine - Strategies & Example Action Items:

9.1.1 Recreation

Maintain recreational facilities to provide sufficient, yet efficient public recreational opportunities.

9.2.1 Forest Planning

Develop Area/Forest Plans to formalize and guide management objectives and strategies on specific public ownerships.

Example Action Items:

- Maintain and implement MTNF's Forest Plan
- Maintain and implement Area Plans for MDC Conservation Areas

9.3.1 Public Trust and Awareness

Develop better public trust and awareness of public land management needs and activities through enhanced communication, transparency and stakeholder input.

9.4.1 Conflict Avoidance

Manage and maintain public lands in a way which minimizes potential conflicts and impacts between different user groups and interest groups.

9.5.1 Forest Land Conservation

Develop and implement a strategic forest land conservation program with goals of: 1) Acquiring or otherwise protecting tracts key to maintaining or enhancing the value of existing public lands; 2) Acquiring or otherwise protecting tracts key to providing other important public benefit; and 3) Disposing of tracts which offer minimal conservation or public value (replacing them with equal acreage of greater public value).

Example Action Items:

- Targeted land acquisition and disposal.
- Conservation easements.

9.6.1 Monitoring and Inventorying

Inventory forest resources on public lands to monitor trends and sustainability and to facilitate sustainable forest management decisions.

Example Action Items:

- Forest Inventory and Analysis.
- Continuous Forest Inventory
- Forest compartment inventories

9.7.1 Partner Collaboration

Foster better communication and collaboration between all public forest land management agencies.

Example Action Items:

- Conduct a Forest Summit of all public forest land management agencies to discuss implementation of FRAS.
- Develop follow-up agreements in accordance with the Summit.
- Develop Advisory Council
- Agencies with foresters on staff provide assistance to agencies without foresters

9.8.1 Demonstration

Manage public land in a way which demonstrates sustainable forest management practices – providing examples for others to follow.

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Issue Theme Ten: Maintaining Biological Diversity

Missouri's forests and woodlands support a great diversity of plants and animals. Missouri's Comprehensive Wildlife Strategy (CWS) was created to maintain and enhance this diversity. Threats and opportunities facing Missouri's forest and woodland biodiversity are virtually identical to the forest sustainability issues described in great detail throughout this Assessment. Therefore, CWS and FRAS will work together very closely towards achieving overlapping visions. Issue Ten provides a brief overview of CWS, and describes three additional tools and resources MDC and various stakeholders are using to maintain and enhance diversity: Missouri's ecological classification systems, Forest Land Action Guidelines, and the Missouri Natural Areas Program.

Desired Future Conditions:

1. Forest natural communities are restored and/or maintained.
2. Forests are well balanced in type, age and size distribution.
3. Populations of Species of Conservation Concern and Threatened and Endangered Species are stabilized.
4. Populations of all Missouri flora and fauna are sustained by healthy and well-functioning natural communities and landscapes.

Issue Theme Ten - Strategies & Example Action Items:

10.1.1 Natural Community Restoration and Maintenance

Maintain and restore forests, woodlands, glades and savannas which are well suited to their growing sites, best suited to wildlife targets, and most resilient to forest threats.

Example Action Items:

- Utilize ECS/FLAG and adaptive natural community management.
- Timber harvests
- Forest Stand Improvement
- Prescribed fire
- Reforestation
- Forest compartment inventories
- Prioritize restoration activities to ensure limited resources are used as effectively as possible.

10.2.1 Forest Land Action Guidelines

Maintain and Utilize MDC's Forest Land Action Guidelines (FLAG) to help guide forest management decision-making on MDC forestland and other forests as land managers so choose. FLAG provides a detailed description of Missouri's forest/woodland types, management consideration, and forester experience write-ups to provide statewide adaptive resource management opportunities.

10.3.1 Wildlife Targets

Establish baseline data and targets for forest wildlife habitat initiatives.

10.4.1 Comprehensive Wildlife Strategy

Work with and utilize the CWS process to maintain and enhance Missouri's biodiversity.

10.5.1 Natural Areas

Recognize the best examples of healthy forest and woodland community types and manage them to maintain their integrity.

Example Action Items:

-Restore and or maintain forest communities recognized as Missouri Natural Areas.

Note: This list of strategies is not all inclusive. Additional strategies contributing towards this Issue Theme can be found listed under Issue Themes 1, 2, 3, 4, 5, 6, 7, 9, 10 & 11.

Issue Theme Eleven: Logistical Framework for Sustainability

Today's actions will largely determine the future health and sustainability of our forest resources, and the future benefits these resources will provide. Sustaining forest resources requires adequate funding, and a diversity of partnerships and people collaborating on the implementation of strategies which are as efficient, effective and synergistic as possible. Above all, sustainability of Missouri's forest resources requires that Missouri citizens understand and appreciate the value of forest resources, the issues facing them, the opportunities they present, and the role people play in determining the future of the forest.

Desired Future Conditions:

1. Public agencies efficiently and effectively work towards sustainability of Missouri's forest resources and the services they provide.
2. Various public and private forest stakeholders collaborate effectively to generate new ideas and knowledge, feed off of each other's strengths, and increase dialogue.
3. Sufficient funding is available and widely supported by Missouri citizens to ensure the sustainability of Missouri's forests and the services they provide.
4. Missouri citizens understand and appreciate the value and diverse benefits of Missouri's forest resources, and the threats facing their sustainability.
5. Missouri citizens understand and support the need for proactive management to maintain the health and sustainability of Missouri's forest resources.
6. Missouri citizens understand the role they play in determining the future sustainability of Missouri's forest resources.

Issue Theme Eleven - Strategies & Example Action Items:

11.1.1 Partner Collaboration

Develop Priority Forest Landscape and Urban Forest Opportunity Area stakeholder groups for the purpose of collaborating on the development and implementation of objectives and strategies specific to established priority geographies.

Example Action Items:

- Identify, enable and hold accountable a project leader in these high priority geographies.

11.1.2 Partner Collaboration

Develop and Utilize the Missouri Forest Resources Advisory Council as a means for collaboration and communication of prominent statewide forestry issues between forestry agencies and partner organizations.

11.1.3 Partner Collaboration

Develop and Utilize the Missouri Community Forestry Council as a means for collaboration and communication of prominent urban and community forestry issues between forestry agencies and partner organizations.

11.1.4 Partner Collaboration

Develop a Missouri Forest Landowner Association to improve communication of important forestry information to and from landowners, and to develop advocacy for sustainable forestry.

11.2.1 Data and Research

Inventory forest resources across the state to monitor trends and sustainability and to facilitate sustainable forest management decisions.

Example Action Items:

-Forest Inventory and Analysis.

11.2.2 Data and Research

Develop and/or obtain better geographic information to enhance assessment capabilities, planning efforts, and management decision making.

Example Action Items:

-Obtain LIDAR data on priority public lands (or all if affordable). Partner with other agencies to make this more affordable.

-Obtain updated National Land Cover Database data, and/or pursue finer scale data as proposed by MORAP. Partner with other agencies to make this more affordable

11.2.3 Data and Research

Conduct surveys to determine public attitudes towards trees, forests and their benefits, threats and management options.

11.2.4 Data and Research

Conduct research of important data gaps which will facilitate the advancement and improvement of forest planning and management.

Example Action Items:

-MOFEP

11.3.1 Legislation

Explore the concept of establishing forest-friendly legislation.

Example Action Items:

-Promote Right to Practice Forestry Act

-Smart Growth legislation

-Enhanced legislation for conservation easements

-Ban the sale of exotic invasive plants (autumn olive, bush honeysuckle, etc.)

-Improve tax code for private forest landowners.

11.4.1 Volunteer Recruitment

Recruit citizen volunteers to assist with miscellaneous activities towards healthy, sustainable and beneficial forests, and also to improve connection and ownership of citizens to Missouri forests.

Example Action Items:

- Adopt an Acre program for controlling exotic plant species.
- Adopt a Trail program for trail maintenance.
- Forest Keepers
- Heritage Woodlands

11.5.1 Communications

Develop and implement a comprehensive forestry communications and marketing strategy for advancing Missouri's Forest Resource Assessment and Strategy

11.6.1 Engagement

Increase the connection and engagement of the general public, especially kids, to the trees, forests and natural world that support their quality of life.

Note: This list of strategies is not all inclusive. Additional strategies contributing towards this Issue Theme can be found listed under Issue Themes 1-10.